Maryland Geological Survey, Vol. III, Baltimore. The Johns Hopkins Press, 1899.

This volume consists of the application of geology to the "permanent and economical improvement" of the roads of Maryland. It consists of 461 pages and 80 pages on "Laws of Maryland relating to highways." There are 35 plates, including 14 maps, and 38 figures.

The state geologist, Professor William Bullock Clark, contributes the Preface, Part I, Introduction, and Part II, "The Relations of Maryland Topography, Climate and Geology to Highway Construction." The author discusses the "dependence of the highways upon the surface configuration of the land," and their dependence upon the underlying formations; the effects produced upon the roads by temperature changes, precipitation and winds. He gives the areal distribution of the various geological formations of the state, accompanied by a map, and with a hint to roadmasters to make use of the information. Then follows a discussion of the road materials of the state and their relative values for road building.

Part III, "Highway Legislation in Maryland, and its Influence on the Economic Development of the State," is contributed by St. George Leakin Sioussat.

Part IV, "The Present Condition of Maryland Highways," and Part V, "Construction and Repair of Roads," are by Arthur Newhall Johnson.

The condition revealed in Part IV amply justifies the Survey in its undertaking to direct attention to the need and the methods of improvement. Yet Maryland has some excellent highways, and the average condition of its roads is perhaps as good as in most of the states. On the other hand Massachusetts and Connecticut are states which are noted for their good roads. In Part V Mr. Johnson gives practical instruction on grading, drainage, and surfacing which will be of great service in road-building,

The following Parts, VI, VII, VIII, are by Harry Fielding Reid. Part VI treats of the "Qualities of Good Road-Metals and the Method of Testing them." In this chapter Professor Reid deals with the following series of laboratory tests of materials, viz., microscopic test; abrasion test; crushing test; cementation test. The results of these tests upon various rocks are illustrated. Part VIII, relative to "The Advantages of Good Roads," is adapted to awaken an interest in road improvement.

If the people of Maryland shall become convinced that, in addition to incidental advantages, "a sum in the neighborhood of three million dollars would be annually saved by improving the important roads of the state," there will be no difficulty in getting appropriations for road building and repairs. The volume will exert a wide influence for the betterment of the roads of the country. As a piece of bookmaking it is exceptionally good. The type is clear, the illustrations are apt and well-made. The Survey is to be congratulated upon presenting in such excellent form a volume replete with valuable information and suggestion.

JAMES H. SMITH.

Maryland Weather Service, Vol. I, Baltimore. The Johns Hopkins Press, 1899.

The Maryland Weather Service is conducted under the auspices of the Johns Hopkins University, the Maryland Agricultural College and the U. S. Weather Bureau.

In Part I, Introduction, Professor William Bullock Clark gives a brief history of the State Weather Service and presents "lines of investigation pursued by the Service." These are topography, physiography, meteorology, hydrography, medical climatology, agricultural soils, forestry, crop conditions, flora, and fauna. He also enumerates the previous publications of the Service.

Part II consists of "A General Report on the Physiography of Maryland, by Cleveland Abbe, Jr. Professor Abbe discusses physiographic processes in general and takes up briefly each of the physiographic provinces of the state. A study of stream development of the Piedmont Plateau leads to the conclusion that [1] "The streams of the eastern division of the Piedmont Plateau have been superimposed from the formerly more extensive Coastal Plain cover."

Thus the explanation of McGee is confirmed by detailed field work—at least in the eastern part of the plateau. On page 132, Professor Abbe uses the phrase "Topographic Valences of the Rocks." The word "valence" in this connection is not defined, but immediately following the heading quoted the author speaks of the "different degrees of resistance which they [rocks] offer to weathering and erosion." These resistances appear to be what is meant by the term "valences." Since valence is used in a quite different, but definite,

[1] P. 216.